NOTES AND COMMENTS.

I.

THE AUTHORSHIP OF THE GLACIAL THEORY.

FIFTY years have now elapsed since the glacial theory was first formulated and promulgated. This brilliant scientific conception is commonly supposed to have originated with the Swiss *savant*, Louis Agassiz ; but Dr. Otto Volger, in a recent paper published in the *Allgemeine Zeitung*, of Munich (February 17th and 18th), affirms and clearly proves that Agassiz borrowed this idea from Karl Schimper, and that he was not only fully conscious of this indebtedness, but also most carefully concealed it. In the interests of truth and justice, and as a matter of scientific history, it certainly seems desirable that the facts in the case should be presented to the English-reading public.

Karl Schimper, eminent as a botanist, and esteemed as a poet, was born in Mannheim, February 15th, 1803. From 1826 to 1829, he pursued his studies at the Universities of Heidelberg and Munich, in intimate daily association with Agassiz and Alexander Braun, and made, during this period, several original and exceedingly important contributions to the morphology of plants. In recognition of his discoveries, and for the purpose of facilitating the further prosecution of his scientific researches, he received a small annual stipend from the Bavarian Academy of Sciences, which, by enabling him to make frequent excursions among the Bavarian and Tyrolese Alps, turned his attention more and more to geognostic investigations. Gradually his interest in mountain flora was overshadowed by the curiosity excited in him by the gigantic bowlders, near which it grew, and he was led irresistibly to inquire as to the nature and origin of these exotic and erratic blocks. As a botanist, he was first attracted to them by the foreign character of the lichens and mosses, which he found growing upon the bowlders scattered over the Bavarian plains. He continued these observations for several years, and finally embodied the results in a course of lectures, delivered at Munich, in the winter of 1835–36.

In these lectures, Schimper not only unfolded the main features of the glacial theory, but he also seems to have anticipated Mr. Croll in attributing the glacial epoch to astronomical influences, which produced an alternation of "cosmic summers and cosmic winters." According to the Bavarian Privy Councilor, the late Gustav von Bezold, who attended and took notes of these lectures, Schimper proved conclusively that the erratic blocks of granite, or so-called "foundlings," had been transported to their present position, not by water, as had been hitherto supposed, but by the agency of ice, masses of which, several thousand feet thick, once covered all Europe. He also expressly stated that it was due to this method of transportation that the alluvion and drift did not fill up the lakes and the valleys, which would have been the case with diluvial deposits of detritus.

In July, 1836, Schimper was present at a meeting of Swiss naturalists in

Solothurn, where he made the acquaintance of Charpentier and Hugi, with whom he discussed the glacial theory. Agassiz was also there, but showed no interest in this subject, being wholly absorbed in fossil fishes, echinoderms, and mollusks. At this time Schimper investigated the glacial phenomena on the slopes of the Jura and in the Black Forest, where he discovered unmistakable traces of glacial action. In September of the same year he visited Charpentier at Bex, where he remained till December. On his arrival, he found Agassiz already there, who, however, had come, not for the purpose of studying glaciers, as is stated in his biography (p. 261), but solely for the sake of examining Charpentier's fine collection of fossil fishes and shells. He listened to the conversation of the two friends, but took little or no part in it, and only once accompanied them, with his brother-in-law, Francillon, on an excursion conducted by Schimper, to the Col de Balme and the Trient Glacier.

On the 16th of December Schimper arrived at Neuchâtel, and on the 19th discovered the famous glacier marks near Landeron, in the chalk rocks of the Jura. Agassiz, to whom he communicated this discovery, now showed the liveliest interest in it, as well as in the general doctrine of a great glacial epoch, towards which he had hitherto maintained a decidedly skeptical attitude. His constant intercourse with Schimper, who imparted the results of his daily researches without reserve, kindled in him an ardent enthusiasm for this subject, and he resolved to present it to his fellow-citizens of Neuchâtel in a series of public lectures, which were accordingly announced in the *Courrier Neuchâtelois* for January 24th, 1837.

In order to carry out this purpose more successfully Agassiz requested Schimper to let him have the manuscript of the lectures, which the latter had, as already stated, delivered in Munich a year before. But as Schimper was unable to procure this manuscript, owing to the fact that it was locked up in his room at Munich, he wrote to Gustav Bezold, a former pupil, to send with all possible haste the notes which he had taken of the aforementioned lectures. These notes were received in January, and early in February Agassiz began his course of lectures, and continued them at the rate of five a week until the beginning of March. But in the very first lecture Agassiz betrayed so great ignorance of the subject and made so many blunders, especially concerning the nature and constitution of ice, that Schimper generously offered to aid him henceforth in the preparation of each lecture, and this offer was gratefully accepted. Schimper also wrote an ode entitled "Die Eiszeit. Für Freunde gedruckt am Geburtstage Galilei's, 1837" (The Ice Period. Printed for Friends on Galilei's Birthday, 1837), which Agassiz distributed among his auditors. It was signed "Dr. K. F. Schimper," and dated "Neuchâtel, February 15th, 1837." Here the word "Eiszeit" appears for the first time in print, and the date of Schimper's ode is, therefore, regarded by Dr. Volger as the nativity of the glacial theory, although it was really born into the scientific world a twelve-month earlier.

It was perfectly natural that the people of Neuchâtel should have looked upon their distinguished townsman as the author of the strange and striking theory which he promulgated. The local newspapers gave him the full credit of it and probably had not the slightest conception of Shimper's real and originary connection with it. At any rate, it was more pleasing to the proverbially provincial spirit of the Swiss and the cantonal conceit of the Neuchâteles, already restive under Prussian domination, to think that "our Agassiz" should explain the cosmic significance of "our glaciers," than that they should be indebted to a foreigner for the interpretation of their familiar phenomena.

In the summer of 1837, the twenty-second session of the "Helvetic Society of Natural Sciences" was held at Neuchâtel. As Schimper was then in Karlsruhe

and unable to be present at the meeting of the association, he wrote to Agassiz, urging him as a brother (Schimper was betrothed to a sister of Agassiz's first wife) to bring the glacial theory before the assembled *savants*, in *his stead*, and to make use of the fit opportunity afforded to secure the scientific recognition of this "immensely important truth." My discovery, he adds, has already been to me the source of much annoyance, since it offends the inveterate prejudices of neptunists and plutonists alike, and runs counter to the traditional "unbiological notion of a merely mechanically progressive diminution of the earth's temperature." He also refers to some glacial phenomena in the vicinity of Neuchâtel, to which the Helvetic Society should be conducted, and gives the necessary instructions. In view of this letter, the greater part of which is published in the "*Actes de la Société Helvétique des Sciences Naturelles*, Neuchâtel, 1837," no one can doubt, says Dr. Volger, "who was the teacher, and who the pupil."

A comparison of the "*Discours préliminaire*," with which Agassiz, as President of the Helvetic Society is said to have "startled" his auditors, shows how greatly he was indebted to Schimper's communication in the preparation of this address, as it appears in the printed proceedings. He speaks of his exposition of the glacial theory as a "fusion of his views with those of Mr. Schimper;" and it is clear that where he does not follow Schimper, he usually errs, as, for example, when he asserts that the transportation of bowlders by glaciers was due to a gliding or sliding motion on an inclined plane produced by the upheaval of the Alps. Indeed, Dr. Volger declares that Agassiz, notwithstanding all his later glacial investigations, never acquired a knowledge of ice and its peculiar energies. In his preliminary discourse he passes over points which he could not explain, with the phrase, "*Comme ils sont en partie connus, je ne m'y arrête pas;*" adding "*M. Schimper a fait un beau travail sur les effets de la glace, auquel je renverrais mes lecteurs, s'il était publié.*" The rage of Leopold von Buch, mentioned in Mrs. Agassiz's biography of her husband (p. 264), was directed against Schimper, as the real author of the mischief, if we are to believe the account of the affair given shortly afterwards by Agassiz himself to Schimper in Karlsruhe.

But whatever glory emanated from the new doctrine haloed round the brow of Agassiz as its public expounder, and naturally enough he soon grew fond of the easily-won fame. The nimbus of the saint is a covetable head-gear, provided one is not compelled to win it by the thorny crown of martyrdom. It would seem as though Agassiz had so often heard it said that he was the originator of the glacial theory, that he finally began to believe it himself. At this time a certain tension becomes apparent in the personal relations of the two friends. Schimper wrote to Agassiz calling his attention to the fact that the press uniformly attributed to him the theory of a glacial epoch, and earnestly entreating him not to consent by silence to this wrong, but to publish fully and frankly the true state of the case. To this reasonable request Agassiz replied, October 23d, 1837, in a somewhat lofty manner, that he neither read the newspapers nor had anything to do with their contents, but that in the official report of the society's proceedings everything would have its due place.

In his "*Etudes sur les Glaciers*" (published in 1840), Agassiz does not make the slightest allusion to Schimper; and in a letter to Alexander Braun, accompanying a presentation copy of this work, he remarks: "You need not wonder that Schimper's name is no where mentioned. I wished thus to punish his presumption. Whatever he could call his own, in the remotest degree, I have passed over, even when I was compelled to agree with him." Wherein consisted this "presumption," which Agassiz wished to punish by a policy of utterly ignoring the achievements of a colleague, in a manner which, in the interests of

true learning and to the honor of human nature, one would gladly think is rare in the annals of scientific research? Merely in the modest expression of a desire to have his name publicly mentioned in connection with a theory, of which, as is now clearly shown, he was the real and only author.

Schimper urged Braun, who was fully cognizant of the facts, to uphold him in the defense of his rights. But Braun declined to take part in the controversy, on the ground that he "could not approve of the angry attitude of the two friends." Nevertheless, in a letter addressed to Professor Röper, of Rostock, and dated February 22d, 1840, he refers to the glacial theory and declares that "Agassiz and Charpentier, who are now doing most in this matter, are both Schimper's pupils."

Schimper died at Schwetzingen, in the Grand Duchy of Baden, December 21st, 867. At Munich he was the favorite pupil of Schelling, who predicted a brilliant ıture for him. That his subsequent career did not fully realize the promise of his youth was due partly to a certain idealistic indifference to worldly emoluments, but, in a great measure, to the persistent enmity of Leopold von Buch, who could not forgive the young botanist for having introduced into geology a new ice-epoch-making idea, of which he, the veteran geognost, had never dreamed. There is a grim irony in the fate, which, on the one hand, robbed him of the honor of being recognized as the originator of the theory, for which, on the other hand, he appears to have suffered no little persecution.

The ignoring policy which Agassiz inaugurated in his first work on glaciers, he pursued to the bitter end. In the recently published "Life and Correspondence," edited by Mrs. Agassiz, Schimper is mentioned about half a dozen times. He is spoken of as a "most congenial companion," "a young botanist of brilliant promise," and is playfully referred to as "our professor of philosophy;" but there is no intimation that he ever saw a glacier, or took the slightest interest in glacial phenomena.

Dr. Volger's article, of which we have given an abstract, has already attracted considerable attention among scientific men in Germany, and, unless its statements can be refuted, will seriously injure the reputation of Agassiz as a *savant*, and leave an indelible stain upon his character as a man.

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II.

IRISH AID IN THE AMERICAN REVOLUTION.

WITH one glance at Faneuil Hall, and the Irish "love of liberty" that would prevent Englishmen from using it in polite and harmless celebration of "Queen Victoria's Jubilee," permit me to correct the public misapprehension that the Irish were of any great and special service to this republic of ours, in the days of the Revolution. Among Irish-Americans and the politicians who court their votes, the claim of such service usually comes up at public meetings about as follows:

"Ill would it become us to turn a deaf ear to the cry of suffering Ireland when we remember how, in the hour of our own travail—in the hour when our own country was coming into the world amid roar of cannon and groans of anguish—it was Ireland that held out to us the hand of fellowship, etc., etc."

Those who read the papers doubtless remember many orations framed upon this model. Sometimes the speaker goes farther, and attempts to particularize; and then we see something like the recent effort of a Massachusetts statesman and ex-governor who, in recounting the benefits received, says: "She sent us Montgomery! and also remarks with unconscious humor, "Remember the memorial